HICKOK

INSTRUCTION MANUAL

for

MODEL PS-501A

REGULATED POWER SUPPLY

HICKOK TEACHING SYSTEMS INC.
545 Technology Square, Cambridge, Mass.
A Subsidiary of The Hickok Electrical Instrument Company

MODEL PS-501A REGULATED POWER SUPPLY

SPECIFICATIONS

Output:

B + Voltage = 0 to 400 volts DC regulated; 0 to 100 ma continuous (125 ma intermittent)

Bias Voltage = 0 to 100 volts DC at 1 ma

Filament Voltage = 12. 6 volts AC center tapped at 4 amps

B + Regulation = Output varies less than 1% from no load to full load for output of 100 volts to 400 volts.

B + Ripple = Less than 10 mv.

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METERS

Voltmeter =	0 to 400 volts or 0 to 150 volts
Milliammeter =	0 to 150 ua
Output Terminals =	B + and common C - and common 12.6 VAC center tapped filament Chassis ground
Dimensions	13-1/2" wide x 9-1/8" high x 7-1/2" deep
	Net weight 15 lbs. Shipping Weight 18 lbs.
Power Input:	110/220 volts AC 50/60 cycles 150 watts maximum

II GENERAL DESCRIPTION:

The Regulated Power Supply Model PS-501A has been designed for use whenever a source of constant output voltage is required. The B+ output is variable from 0 to 400 volts with a maximum output of 100 Milliamperes on continuous operation.

The C- output is variable from 0 to 100 volts, at a maximum output of 1 Milliampere on continuous operation. Filament voltage supply is 12.6 volts AC center tapped with a maximum output of 4 amperes.

A three position switch allows the filament power to be switched on independantly of the B+ and C- supplies. The five way binding posts allow various types of connectors to be used with the power supply.

IV OPERATION INSTRUCTIONS:

1. Plug the line cord into a 117 volt A.C. source.
   Note: If your power supply is wired for 220 volt operation, Plug the line cord into a 220 volt A.C. source.

III OPERATION INSTRUCTIONS:

2. Turn the power switch to the stand-by position. This activates the filament voltage of the tubes in the power supply and also activates the 12.6 volts A.C. output.
Allow the power supply to warm up for about 30 seconds.

3. Turn the power switch to the ON position. This activates the B+ and C- outputs.

4. To read the B+ output voltage, set meter switch to the B+ position, turn the B+ output control clockwise and read the voltage on the 0-400 volt scale on the voltmeter.

5. To read the C- output, set the meter switch to the C- position turn the C- output control, clockwise and read the voltage on the 0-150 volt scale on the voltmeter.

6. Note that both the B+ and C- supplies are ON when the power switch is in the ON position.

III. OPERATION INSTRUCTIONS:

7. The Milliameter reads B+ output current at all times. The C- output current is not metered.

8. The chassis ground is isolated from the supply common to allow the supplies to be used either as a positive or negative supply. By connecting the ground terminal to either of the common connections. The chassis may be used as the B+ and C- grounds.

CAUTION: THE B+ OUTPUT CURRENT MUST NOT EXCEED 100 MA UNDER CONTINUOUS OPERATION OR 125 MA UNDER INTERMITTENT OPERATION OR SERIOUS DAMAGE WILL RESULT.

IV. CALIBRATION:

The Regulated Power Supply is calibrated at the factory and under normal conditions should not require calibration. However should re-calibration be necessary, use the following procedure:

1. Turn the power switch to STAND-BY and allow the tubes to warm up for about 30 seconds.

2. Turn the power switch to the ON position and set the Meter switch to the B+ position.

3. Set the potentiometer R5 to the maximum clockwise position. R5 is the potentiometer on the top front of the chassis mounted closest to the front panel.

4. Set the potentiometer R12 to the maximum counter clockwise position. R12 is the potentiometer on the top front of the chassis mounted furthest from the front panel.

IV. CALIBRATION:

5. Set the B + and C- controls to the maximum counter clockwise position.

6. Adjust R5, counter clockwise until the meter reads 0 volts.

7. Turn the B+ control maximum clockwise.

8. Adjust R12 clockwise until the meter reads 400 volts.

9. Now reset the B+ control back to its maximum counter clockwise position. Because R5 and R12 interact with each other, it is necessary to repeat steps 6, 7, and 8 several times until the maximum clockwise position of the B+ control gives a reading of 400 volts and the maximum counter clockwise position of this control gives a reading of 0 volts.

PARTS LIST

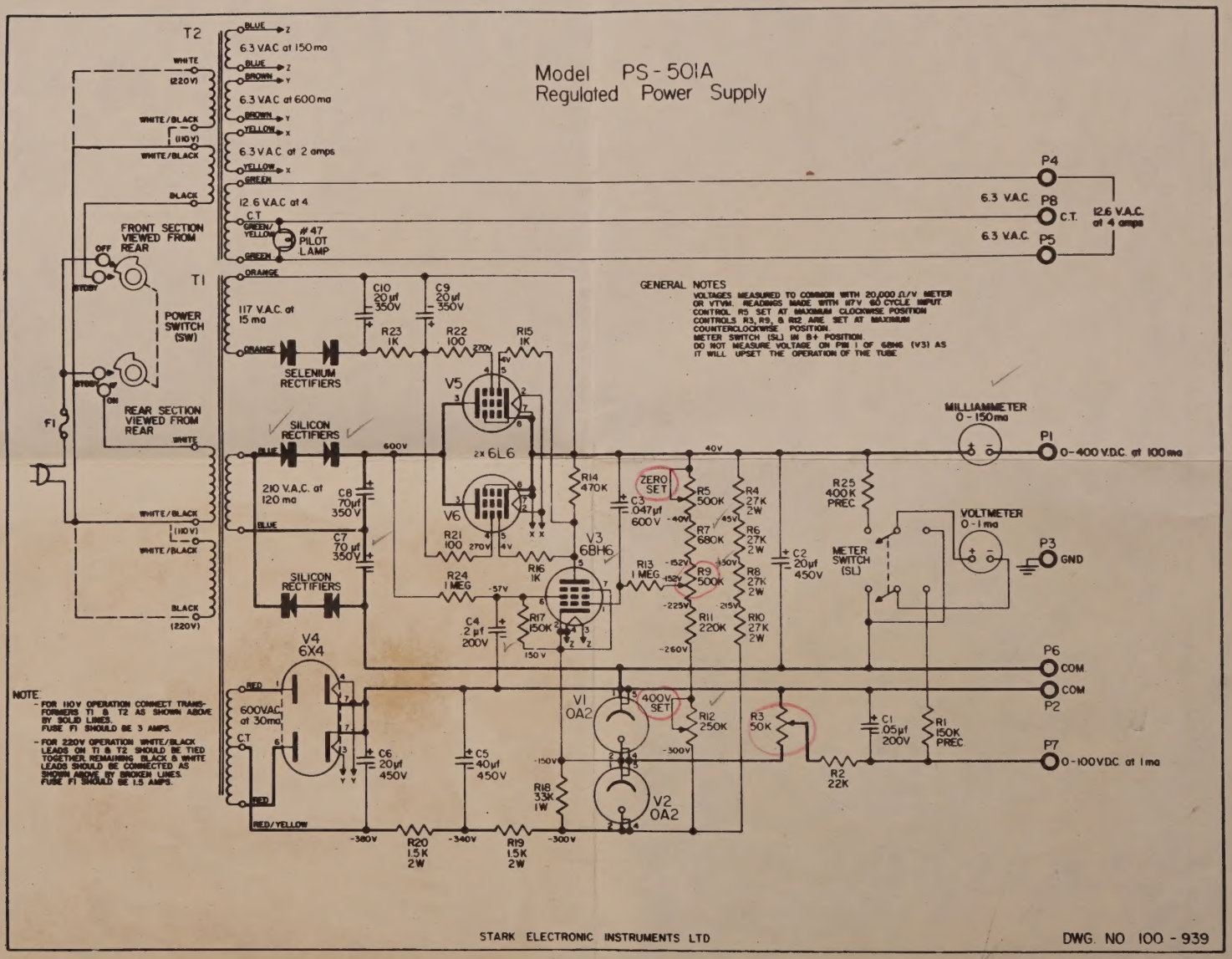
Part No.	Description	Quantity	Cct. Symbol
103-9-11	Binding post, 5 way, black	6	
103-9-12	Binding post 5 way, red	2	
110-3-7	Diode Holder	2	
110-3-8	Fuseholder, Littelfuse 342001	1	
112-6-42	Capacitor, tubular, electrolytic 40 mfd @ 450V	1	C5
112-6-43	Capacitor, tubular, electrolytic 20 x 20 mfd @350V	1	C9, C10
112-6-44	Capacitor, tubular, electrolytic 20 mfd @450V	2	C6, C2
112-6-45	Capacitor, tubular , electrolytic 70 mfd @350V	2	C7, C8

112-6-46	Capacitor, tubular, paper, .047mfd @600V	1	C3
112-6-47	Capacitor, tubular, paper, .2 mfd @200V	1	C4
112-10-78	Capacitor, tubular, paper, .05 mfd @200V	1	C1
125-2-5	Lamp, 6-8 volt, bayonet base	1	
125-9-8	Fuse, 3AG, 2 amp, 250 volts	1	
131-3-17	Pilot light assembly, red jewel	1	
134-5-89	Potentiometer, 50K, composition 1/2W, audio taper, C- adjust	1	R3
134-5-90	Potentiometer, 500K, 1/2W, composition, linear, B+ adjust	1	R9
134-5-91	Potentiometer, 250K, 1/2W, composition, linear tab type, screwdriver adjust, 400V Set	1	R12

134-5-92	Potentiometer, 500K, 1/2W, composition, linear tab type, screwdriver adjust, Zero set	1	R5
138-2-12	Silicon rectifier, 150 ma.	4	
138-2-13	Selenium rectifier, 50 ma	2	
144-9-76	Slide switch, DPDT	1	
144-9-98	Switch, rotary, 2 deck, 3 position	1	
148-9-98	Transformer, filament, 110 volts, 60 cycle only	1	
148-9-69	Transformer, High voltage 110 volts 60 cycle only	1	
161-1-24	Meter, Gold Brand, #135, 150 ma, FSD, Single scale 0-150 DC ma.	1	
161-1-25	Meter, Gold Brand, #135, FSD, 1 ma Dual scale 150, 400V	1	
163-1-18	Tube, 6L6GC	2	

163-1-63	Tube, 6X4	1	
163-1-66	Tube, 6BH6	1	
163-1-67	Tube, 0A2	2	
182-12-154	Resistor, dep. carbon, 150K, ± 1% 1/2W	1	R1
182-12-404	Resistor, dep. carbon, 400K, ± 1%, 1/2W	1	R25
181-15-101	Resistor, composition, 100 ohms ± 10%, 1/2W	2	R21, R22
181-15-102	Resistor, composition, 1K, ± 10% 1/2W	3	R23, R15 R16
181-15-223	Resistor, composition, 22K, ± 10% 1/2W	1	R2
181-15-154	Resistor, composition, 150K, ± 10%, 1/2W	1	R17

181-15-224	Resistor, composition, 220K, ± 10%, 1/2W	1	R11
181-15-474	Resistor, composition, 470K, ± 10%, 1/2W	1	R14
181-15-684	Resistor, composition, 680K, ± 10%, 1/2W	1	R7
181-15-105	Resistor, composition, 1 megohm ± 10%, 1/2W	2	R13, R24
181-25-333	Resistor, composition, 33K, ± 10% 1W	1	R18
181-35-152	Resistor, composition, 1.5K, ± 10% 2W	2	R19, R29
181-35-273	Resistor, composition, 27K, ± 10%, 2W	4	R4, R6, R8, R10


Model PS-501A
Regulated Power Supply
T2
T1
6.3 VAC at 150 ma
6.3 VAC at 600 ma
6.3 VAC at 2 amps
12.6 VAC at 4
#47 PILOT LAMP
FRONT SECTION VIEWED FROM REAR
POWER SWITCH (SW)
REAR SECTION VIEWED FROM REAR
117 V.A.C. at 15 ma
210 V.A.C. at 120 ma
SELENIUM RECTIFIERS
SILICON RECTIFIERS
SILICON RECTIFIERS
2x 6L6
V3 6BH6
V4 6X4
V1 0A2
V2 0A2
V5
V6
C10 20 µf 350V
C9 20 µf 350V
C8 70 µf 350V
C7 70 µf 350V
C3 .047 µf 600V
C2 20 µf 450V
C4 .2 µf 200V
C6 20 µf 450V
C5 40 µf 450V
C1 .05 µf 200V
R23 1K
R22 100
R15 1K
R14 470K
R21 100
R16 1K
R24 1 MEG
R17 150K
R13 1 MEG
R5 500K
R7 680K
R9 500K
R4 27K 2W
R6 27K 2W
R8 27K 2W
R11 220K
R10 27K 2W
R12 250K
R3 50K
R2 22K
R1 150K PREC
R25 400K PREC
R18 33K 1W
R20 1.5K 2W
R19 1.5K 2W
ZERO SET
400V SET
METER SWITCH (SL)
MILLIAMMETER 0-150ma
VOLTMETER 0-1 ma
P1 0-400 V.D.C. at 100 ma
P2 COM
P3 GND
P4 6.3 V.A.C.
P5 6.3 V.A.C.
P6 COM
P7 0-100 V.D.C. at 1 ma
P8 C.T. 12.6 V.A.C. at 4 amps
GENERAL NOTES
VOLTAGES MEASURED TO COMMON WITH 20,000 Ω/V METER OR VTVM. READINGS MADE WITH 117V 60 CYCLE INPUT.
CONTROL R15 SET AT MAXIMUM CLOCKWISE POSITION
CONTROLS R3, R9, & R12 ARE SET AT MAXIMUM COUNTERCLOCKWISE POSITION
METER SWITCH (SL) IN B+ POSITION
DO NOT MEASURE VOLTAGE ON PIN 1 OF 6BN6 (V3) AS IT WILL UPSET THE OPERATION OF THE TUBE
NOTE
- FOR 110V OPERATION CONNECT TRANSFORMERS T1 & T2 AS SHOWN ABOVE BY SOLID LINES. FUSE F1 SHOULD BE 3 AMPS.
- FOR 220V OPERATION WHITE/BLACK LEADS ON T1 & T2 SHOULD BE TIED TOGETHER REMAINING BLACK & WHITE LEADS SHOULD BE CONNECTED AS SHOWN ABOVE BY BROKEN LINES. FUSE F1 SHOULD BE 1.5 AMPS.
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